Live Electrical Work Policy
(Planned Addendum to PUB 3000 Chapter 8)
Effective Dec. 2, 2004

All electrical work should be done in the locked out, tagged out, and verified safe, non-energized condition.

When this is not possible, work must be controlled by permit.

I. Testing, probing, and verification will be covered by a low or moderate hazard energized work permit (Appendix A).

This permit is located at the end of Pub 3000 Chapter 8.
Examples of the types of work covered under this permit are:

- Verification of the absence of hazardous energy (verification step for Lockout / Tagout).
- Meter level diagnostics of voltage, current, etc. (where resistance values alone will not provide the information necessary to diagnose equipment).
- Normal switching and racking of breakers with approved procedures (Facilities Operating Procedure 253).

Note: This work requires approval by the supervisor and / or manager and will require some or all of the following (Pub 3000 Chapter 8):

- Necessity
- Employee qualifications
- Hazard Analysis and Hazard Level (NFPA 70 E)
- Appropriate added shielding
- Personal Protection Equipment, clothing, and tools to be used (NFPA 70 E and Pub 3000 Ch.8).
- Written Procedures
- Manpower/Safety Watch
- Barriers and barricades

This work can only be done in equipment that incorporates testing and probing into its design. (Per manufacturer, Nationally Recognized Testing Laboratory, or LBNL Electrical Safety Review Committee).

II. All manipulative work on energized equipment must be covered by a high hazard energized work permit (Appendix B).

Manipulative work temporarily is defined as moving, modifying, or replacing conductors or components.

In addition to the requirements in Sec. I above, the following also must be completed:

1. The specific reasons that this work cannot be done in the verified, de-energized condition.

2. A complete description of the scope of the energized work to be preformed.

3. A safety analysis identifying all mitigation techniques and safety controls. Such analysis must be done in consultation with the Lab's Electrical Safety Sub-Committee of the Safety Review Committee and follow NFPA 70E requirements. Contact Tom Caronna, X4314 early in the planning process.

All signatures are required before work can begin.

Table to Clarify Changes

	PUB 3000 Ch.8, Existing Policy	Interim Policy, Oct. 29, 2004	Proposed Effective Dec. 2, 2004
A. Verification of the absence of hazardous energy	Supervisor approval	**LBL directorate approval – Appendix B permit required**	Supervisor notification and approval. Execute Appendix A permit if supervisor deems necessary.
B. Testing and diagnosis	Supervisor approval and Appendix A permit	**LBL directorate approval – Appendix B permit required**	Supervisor notification and approval. Execute Appendix A permit if supervisor deems necessary.
C. Switching and racking of breakers	Supervisor approval and Appendix A plus switching tag	**LBL directorate approval – Appendix B permit required**	Supervisor approval and Appendix A permit plus switching tag
D. Manipulation of conductors and / or components	Supervisor approval and Appendix A	**LBL directorate approval – Appendix B permit required**	LBNL directorate approval – Appendix B

Hazard levels for this policy are in Chapter 8 of PUB 3000.

Item D work will only be performed in extreme, exceptional and rare circumstances, and with the approval of Lab Deputy Director of Operations

All Work must be done with appropriate Personal Protection Equipment (PPE), Methods, and all other safety requirements per Chapter 8 of PUB3000.

This policy meets or exceeds the requirements of:
National fire protection Association (NFPA) 70 (National Electric Code)
National Fire protection Association (NFPA) 70E (Standard for Electrical Safety Requirements for Employee Workplaces).
International Electrical and Electronic Engineering (IEEE) Standards
ANSI- National Electrical Safety Code
All applicable OSHA Standards (29CFR 1910 subpart S and 29 CFR 1926 construction)

Appendix A
SIGNOFF SHEET FOR WORK ON ENERGIZED ELECTRICAL EQUIPMENT (Item A-C work)

Engineering order or work request number: _____

Name and location of equipment: _____

_____

Reason for electrical equipment to remain energized:_____

_____

Work to be performed on equipment (brief outline of method, including safety items):_____

_____

_____

_____

_____

_____

Work scheduled:	_____ Date	_____ Time
Signed By:	_____ Person-in-Charge	_____ Date
	_____ 1. Qualified person performing work	_____ Date
	_____ 2. Qualified person performing work	_____ Date

Appendix B

SIGNOFF SHEET FOR WORK ON ENERGIZED ELECTRICAL EQUIPMENT (Item D Work)

Engineering order or work request number: _____

Division requesting permit:_____

Name and location of equipment: _____

_____

Reason for electrical equipment to remain energized:

_____

_____

Work to be performed on equipment (brief outline of method, including safety items):

_____

_____

_____

Work scheduled:	_____	_____
	Date	Time
Signed By:	_____	_____
	Supervisor / Person-in-Charge	Date
	_____	_____
	1. Qualified person performing work	Date
	_____	_____
	2. Qualified person performing work	Date
Authorized By:	_____	_____
	EH&S Electrical Safety Engineer	Date
	_____	_____
	Responsible Division Director	Date
	_____	_____
	Phyllis Pei, EH&S Division Director	Date
	_____	_____
	Sally Benson, Laboratory Deputy Director	Date

Information Copy: Tom Caronna, Electrical Safety Engineer, MS-75B

For additional information, please see the following PUB 3000 chapters:

Chapter 8: Electrical Safety
Chapter 18: Lockout/Tagout

You may also contact Tom Caronna, LBNL Electrical Safety Engineer at (510) 486-4314.